

REMARKS

The Examiner's Office Action dated October 31, 2008 has been received and carefully considered. In conformance with the applicable statutory requirements, this paper constitutes a complete reply and/or a bona fide attempt to advance the application to allowance. Reexamination and/or reconsideration of the application as amended are respectfully requested. Applicants hereby petition for any necessary extension of time and request that any necessary fee be charged to the credit card via EFS-Web.

Summary of the Office Action

Claims 1-5 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Yoneda (U.S. Patent No. 4,614,645) in view of Monro (U.S. Patent No. 5,044,424), in further view of Yamashita (U.S. Patent No. 4,377,483).

§ 103 Rejections

Independent claim 1 recites an exhaust processing system having *inter alia* a heat medium circulation pipe passage is provided with temperature control means which measures the mercury concentration in exhaust smoke discharged from any one or more of a dust collector, a wet-type exhaust smoke processing apparatus, and a reheater, and adjusts the temperature of the exhaust smoke at an outlet of the heat recoverer such that the mercury concentration falls within a predetermined range.

Such an exhaust processing system is not shown nor disclosed by Yoneda, in view of Monro, in further view of Yamashita.

There is no teaching or suggestion of a heat medium circulation pipe passage with temperature control means able to adjust the temperature of exhaust smoke of the heat recoverer such that the mercury concentration falls within a predetermined range as per independent claim 1. The Examiner points to column 6, lines 28 through column 7, line 51, Tables 1-4, and column 8, lines 54-64 of Yoneda as disclosing a heat medium circulation pipe passage with temperature control means which measures heavy metal concentration in exhaust smoke discharged from any one or more of the

dust collector, the wet-type exhaust smoke processing apparatus and a reheater, and adjusts the temperature of the exhaust smoke at an outlet of the heat recoverer such that the mercury concentration falls within a predetermined range. This interpretation of Yoneda is respectfully traversed.

Yoneda discloses a cleaned exhaust gas 9 being sent from an absorption tower to a gas-gas heater 33 wherein the exhaust gas 9 is again heated. Specifically, the cleaned exhaust gas 9 is returned from absorption tower 8 to the gas-gas heater and is heated there again, and it is then discharged into the atmosphere through chimney 30 (See Column 4 of Yoneda, lines 52+). Therefore, this appears contrary to the assertion advanced by the Examiner indicating that Yoneda teaches a heat medium circulation pipe passage 9.

Furthermore, Yoneda discloses the temperature of the gas to be discharged through the chimney into the atmosphere can be maintained at a constant level only by the heat recovery with the aid of the gas-gas heater, and no reheater is required. On the contrary, as presently claimed, a reheater 13 is necessary for controlling the mercury concentration in the exhaust smoke within a predetermined range.

With respect to Monro, the Examiner points to Figure 1, column 5, lines 10-26 disclosing a preheater that uses gas going out of the boiler to heat the clean gas that enters a boiler. However, Monro discloses a method and system for improving the efficiency of heat generators and particularly for better utilization of heat produced in the thermal section for a large electric power plant using a combustible fuel (Column 1, lines 22-26 of Monro). The Examiner states on page 7 of the Office Action that it would have been obvious to one skilled in the art to have modified the exhaust smoke processing system of Yoneda in view of Monro in order to improve the efficiency of such heat generators and for better utilization of heat produced in the thermal section. However, the present disclosure is not directed to improving the efficiency of heat generators or to utilizing the heat produced in the thermal section, but is directed to eliminating or decreasing a heavy metal like mercury included in exhaust smoke at a low cost (See Specification, page 3, lines 7-10, and page 15, lines 22-25).

With respect to Yamashita, the Examiner points to column 15, lines 5-29 and Table 14 as disclosing a measuring means which measures a heavy metal mercury

concentration in exhaust smoke discharged. However, Table 14 discloses a relationship between a releasing temperature and an amount of mercury released from a slag. That is, the higher the releasing temperature, the lower the amount of mercury released from a slag. In addition, although Yamshita discloses that an aqueous solution of $HgCl_2$ is admixed with slag, the resulting slag which has absorbed mercury is heated to release the absorbed mercury. It does not teach or suggest a measuring means which measures a mercury concentration in exhaust smoke discharged, nor teach a heat medium circulation pipe passage provided with temperature control means.

Furthermore, Applicants maintain the combination of Yoneda, Monro, and Yamashita is improper because Yoneda teaches away from the claimed invention. A reference which leads one of ordinary skill in the art away from the claimed invention cannot render it obvious under 35 U.S.C. §103. Dow Chemical Company v. American Cyanamid Company, 816, F.2d 617 (Fed. Cir. 1987).

According to Yoneda, measuring a concentration of suspended dust material in an effluent from the wet exhaust gas treating device and the amount of said effluent is adjusted such that the concentration of suspended dust material becomes 1-5 wt% (Column 3, line 54 to column 4, line 6 of Yoneda). According to the device disclosed in Yoneda, it is impossible to decrease the mercury concentration in the exhaust gas discharged from a smoke stack. Therefore, Yoneda teaches away from the element that controls mercury emissions.

Thus, it would not be obvious to modify the exhaust smoke processing system of Yoneda in view of Monro in further view of the teaching of Yamashita in order to efficiently remove heavy metal contained in an aqueous solution.

Accordingly, it is submitted that claim 1, along with claims 2 and 5 distinguish over the references of record.

Independent claim 3 recites an exhaust smoke processing system which includes an air preheater for heating combustion air by exhaust smoke discharged from a boiler, a dust collector for collecting soot and dust in exhaust smoke discharged from the air preheater, and a wet-type exhaust smoke processing apparatus for wet-type processing exhaust smoke discharge from the dust collector. The system further includes a measuring means which measures the mercury concentration in exhaust smoke

discharged from the wet-type exhaust smoke processing apparatus, and control means for adjusting any one or more of pH of liquid absorbent of the wet-type exhaust smoke processing apparatus, a flow rate of oxidizing-air, and a flow rate of waste water, such that the measured mercury concentration falls within a predetermined range.

As described above, Yoneda discloses that the temperature of the gas to be discharged through the chimney into the atmosphere can be maintained at a constant level only by the heat recovery with the aid of the gas-gas heater, and no reheater is required. On the contrary, as presently claimed, a reheater 13 is necessary for controlling the mercury concentration in the exhaust smoke within a predetermined range.

With respect to Monro, the Examiner points to Figure 1, column 5, lines 10-26 disclosing a preheater that uses gas going out of the boiler to heat the clean gas that enters a boiler. However, Monro discloses a method and system for improving the efficiency of heat generators and particularly for better utilization of heat produced in the thermal section for a large electric power plant using a combustible fuel (Column 1, lines 22-26 of Monro). The Examiner states on page 7 of the Office Action that it would have been obvious to one skilled in the art to have modified the exhaust smoke processing system of Yoneda in view of Monro in order to improve the efficiency of such heat generators and for better utilization of heat produced in the thermal section. However, the present disclosure is not directed to improving the efficiency of heat generators or to utilizing the heat produced in the thermal section, but is directed to eliminating or decreasing a heavy metal like mercury included in exhaust smoke at a low cost (See Specification, page 3, lines 7-10, and page 15, lines 22-25).

Thus, it would not be obvious to modify the exhaust smoke processing system of Yoneda in view of Monro in order to improve the efficiency of such heat generators and for better utilization of heat produced in the thermal section.

For these reasons and those discussed above in reference to independent claim 1, it is submitted claim 3 distinguishes over the references of record.

Independent claim 4 recites an exhaust smoke processing system that includes an air preheater for heating combustion air by exhaust smoke discharged from a boiler, a heat recoverer for heating a heat medium by exhaust smoke discharged from the air

preheater, a dust collector for collecting soot and dust in exhaust smoke discharged from the heat recoverer, a wet-type exhaust smoke processing apparatus for wet-type processing exhaust smoke discharged from the dust collector, a reheat for heating exhaust smoke discharged from the wet-type exhaust smoke processing apparatus by the heat medium, and a heat medium circulation pipe passage for circulating the heat medium between the reheat and the heat recoverer. The system further includes a measuring means which measures a mercury concentration in exhaust smoke discharged from the dust collector, and a control means which adjusts the temperature of exhaust smoke at an outlet of the heat recoverer such that the measured heavy metal concentration falls within a predetermined range, and which also measures the mercury concentration in exhaust smoke discharged from the wet-type exhaust smoke processing apparatus, and a control means which adjusts any one or more of pH of liquid absorbent of the wet-type exhaust smoke processing apparatus, a flow rate of oxidizing-air, and a flow rate of waste water, such that the measured heavy metal concentration falls within a predetermined range.

As described above, Yoneda discloses the temperature of the gas to be discharged through the chimney into the atmosphere can be maintained at a constant level only by the heat recovery with the aid of the gas-gas heater, and no reheat is required. On the contrary, as presently claimed, a reheat 13 is necessary for controlling the mercury concentration in the exhaust smoke within a predetermined range.

With respect to Monro, the Examiner points to Figure 1, column 5, lines 10-26 disclosing a preheater that uses gas going out of the boiler to heat the clean gas that enters a boiler. However, Monro discloses a method and system for improving the efficiency of heat generators and particularly for better utilization of heat produced in the thermal section for a large electric power plant using a combustible fuel (Column 1, lines 22-26 of Monro). The Examiner states on page 7 of the Office Action that it would have been obvious to one skilled in the art to have modified the exhaust smoke processing system of Yoneda in view of Monro in order to improve the efficiency of such heat generators and for better utilization of heat produced in the thermal section. However, the present disclosure is not directed to improving the efficiency of heat generators or to

utilize the heat produced in the thermal section, but is directed to eliminating or decreasing a heavy metal like mercury included in exhaust smoke at a low cost (See Specification, page 3, lines 7-10, and page 15, lines 22-25).

Thus, it would not be obvious to modify the exhaust smoke processing system of Yoneda in view of Monro in order to improve the efficiency of such heat generators and for better utilization of heat produced in the thermal section.

For these reasons and those discussed above in reference to independent claim 1, it is submitted claim 4 distinguishes over the references of record.

CONCLUSION

All formal and informal matters having been addressed, it is respectfully submitted that this application is in condition for allowance. If the Examiner is of the view that all of the pending claims of the application are not in clear condition for allowance, it is requested that the Examiner telephone the undersigned for purposes of conducting a telephone interview to resolve any differences. Accordingly, an early notice of allowance is earnestly solicited.

Respectfully submitted,

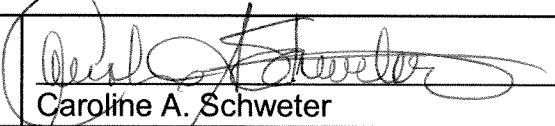
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I hereby certify that this correspondence (and any item referred to herein as being attached or enclosed) is (are) being transmitted to the USPTO by electronic transmission via EFS-Web on the date indicated below.	
Date: March 31, 2009	 Caroline A. Schweter